

What is claimed is:

1. A replaceable circuit breaker module comprising:
  - a housing for supporting and enclosing elements of the module;
  - 5 a circuit breaker mounted in the housing in a manner that an action of installing the module connects the breaker to bridge an incoming and an outgoing conductor; and
  - monitoring circuitry for monitoring characteristics of the circuit breaker, the monitoring circuitry mounted in the housing and having a first
  - 10 connector element for engaging a mating connector element in the action of installing the module;
  - characterized in that action of withdrawing the circuit breaker module also withdraws the monitoring circuitry.
- 15 2. The module of claim 1 wherein the monitoring circuitry includes sensors for monitoring one or more of breaker presence, on/off state of the breaker, and voltage provided to the breaker.
3. The module of claim 1 wherein the module is configured as a docking
- 20 module for docking in a bay of a cabinet to be powered, and the installation action is an action of docking the module in the docking bay.
4. The module of claim 1 further comprising a safety mechanism for preventing the module from being docked or withdrawn with the breaker on.
- 25 5. The module of claim 4 wherein the safety mechanism comprises a horizontal bar guided vertically in slots such that the bar is held in a notch of a bracket affixed to a cabinet to be powered when the breaker is closed (on),

and lowering the bar from the notch to release the module for extraction trips the breaker open (off), thus preventing arcing during docking or withdrawing of the module.

- 5        6. An electronic cabinet having a redundant power supply and comprising:  
              a redundant power unit having docking bays for two or more breaker  
modules;  
              a first conductor delivering power to the power unit from an external  
source; and  
10            a second conductor delivering power from the power unit to  
elements in the cabinet from the power unit;  
              wherein each breaker module comprises a housing for supporting and  
enclosing elements of the module, a circuit breaker mounted in the housing  
in a manner that an action of installing the module connects the breaker to  
15        bridge first and the second conductors, and monitoring circuitry for  
monitoring characteristics of the circuit breaker, the monitoring circuitry  
mounted in the housing and having a first connector element for engaging a  
mating connector element in the action of installing the module, such that  
action of withdrawing the circuit breaker module also withdraws the  
20        monitoring circuitry.

7. The cabinet of claim 6 wherein the monitoring circuitry includes sensors  
for monitoring one or more of breaker presence, on/off state of the breaker,  
and voltage provided to the breaker.

- 25        8. The cabinet of claim 6 wherein the module is configured as a docking  
module for docking in a bay of a cabinet to be powered, and the installation  
action is an action of docking the module in the docking bay.

9. The cabinet of claim 6 further comprising a safety mechanism preventing the module from being docked or withdrawn with the breaker on.

5 10. The cabinet of claim 9 wherein the safety mechanism comprises a horizontal bar guided vertically in slots such that the bar is held in a notch of a bracket affixed to a cabinet to be powered when the breaker is closed (on), and lowering the bar from the notch to release the module for extraction trips the breaker open (off), thus preventing arcing during docking or  
10 withdrawing of the module.

11. The cabinet of claim 6 dedicated to a packet router in the Internet.

12. A method for improving reliability of a redundant breaker system for an  
15 electronic cabinet, comprising the steps of:

(a) providing two or more breaker modules configured, when installed, to bridge the same two power conductors; and

(b) providing breaker monitoring circuitry with each of the two or more breaker modules, the monitoring circuitry configured to be removed  
20 and replaced with the breaker modules, such that monitoring circuitry is replaced whenever a breaker module is replaced.

13. The method of claim 12 wherein the monitoring circuitry includes sensors for monitoring one or more of breaker presence, on/off state of the  
25 breaker, and voltage provided to the breaker.

14. The method of claim 12 wherein the modules are configured as docking modules for docking in bays of the cabinet to be powered, and the installation action is an action of docking the module in the docking bay.

5 15. The method of claim 12 wherein the modules further comprise a safety mechanism preventing the modules from being docked or withdrawn with the breaker on.

10 16. The method of claim 15 wherein the safety mechanism comprises a horizontal bar guided vertically in slots such that the bar is held in a notch of a bracket affixed to a cabinet to be powered when the breaker is closed (on), and lowering the bar from the notch to release the module for extraction trips the breaker open (off), thus preventing arcing during docking or withdrawing of the module.

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